



# Technical Data

## TYPE SM-8510 SIGNAL MONITOR



The CEI Type SM-8510 Signal Monitor has been designed for use with receivers having a 500-kc IF center frequency. It provides a visual display of signals in a band around the received frequency.

Base line break-up due to overload on strong signals has been eliminated in the SM-8510 by direct coupling of the detector to the CRT deflection plates. This makes it possible to observe weak signals close to very strong signals.

Nuvisitors and solid state devices are used in the design to keep power consumption and size to a minimum.

### SPECIFICATIONS

|                                  |                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------|
| Number of Inputs . . . . .       | One, type BNC                                                                           |
| Input Impedance . . . . .        | 50 ohms                                                                                 |
| Input Center Frequency . . . . . | 500 kc                                                                                  |
| Flatness of Response . . . . .   | Determined by RF response of receiver being employed; particulars available on request. |
| Sweepwidth . . . . .             | 50 kc, 20 kc, or 5 kc, switched by front-panel control                                  |
| Sweep Linearity . . . . .        | Linear over-all to within 5% of the total sweep width                                   |
| Sweep Rate                       |                                                                                         |
| 50-kc Sweep Width . . . . .      | 12 cps $\pm$ 2.5 cps                                                                    |
| 20-kc Sweep Width . . . . .      | 8 cps $\pm$ 2.0 cps                                                                     |
| 5-kc Sweep Width . . . . .       | 4 cps $\pm$ 1.0 cps                                                                     |

Communication Electronics Incorporated

301  
AREA CODE 933-2800

6006 EXECUTIVE BOULEVARD

ROCKVILLE, MARYLAND, 20852

TWX: 301-365-8667

# SPECIFICATIONS - (Cont'd)

## Resolution

|                             |                                                   |
|-----------------------------|---------------------------------------------------|
| 50-kc Sweep Width . . . . . | Minimum 6-db valley between signals 2.5-kc apart  |
| 20-kc Sweep Width . . . . . | Minimum 6-db valley between signals 1.2-kc apart  |
| 5-kc Sweep Width . . . . .  | Minimum 6-db valley between signals 250-cps apart |

Image Rejection . . . . . 50 db, minimum

IF Rejection . . . . . 60 db, minimum

Sensitivity. . . . . 5  $\mu$ v input at 500 kc produces at least one inch deflection on the CRT

Gain Control Range . . . . . 60 db, minimum

## Crystal Marker

Frequency . . . . . 500 kc

Tolerance. . . . .  $\pm 0.01\%$

## Amplitude Scales

Linear. . . . . A signal 20 db down from the value that produces 100% vertical deflection will produce 10% deflection

Logarithmic . . . . . A signal 40 db down from the value that produces 100% deflection will produce 10% deflection

CRT Display Type . . . . . 3XP2

Front Panel Controls . . . . . Center Frequency; Sweep Width; Gain; Marker On/Off; Vertical Display Lin/Log; Power; Intensity; Focus

Power Input . . . . . 115/230 volts, 50-400 cps

Power Consumption . . . . . 30 watts, approximately

Weight. . . . . 15 lbs, approximately

Size . . . . . 3.5-inches high, 19-inches wide, 15-inches deep

NOTE: A modification kit and instructions to modify the Collins 51J-4 or 51S-1 receivers are included with the SM-8510. Please specify receiver type when ordering.

PRICE: \$1,400.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and Specifications subject to change without notice.

10/5/64





# Technical Data

## TYPE SM-8511 SIGNAL MONITOR



The CEI Type SM-8511 Signal Monitor has been designed for use with receivers having a 500-kc IF center frequency. It provides a visual display of signals in a band around the received frequency.

Base line break-up due to overload on strong signals has been eliminated in the SM-8511 by direct coupling of the detector to the CRT deflection plates. This makes it possible to observe weak signals close to very strong signals.

Nuvistors and solid state devices are used in the design to keep power consumption and size to a minimum.

### SPECIFICATIONS

|                                  |                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------|
| Number of Inputs . . . . .       | One, type BNC                                                                           |
| Input Impedance . . . . .        | 50 ohms                                                                                 |
| Input Center Frequency . . . . . | 500 kc                                                                                  |
| Flatness of Response . . . . .   | Determined by RF response of receiver being employed; particulars available on request. |
| Sweepwidth . . . . .             | 200 kc, 50 kc, 20 kc, or 5 kc, switched by front-panel control                          |
| Sweep Linearity . . . . .        | Linear over-all to within 5% of the total sweep width                                   |
| Sweep Rate                       |                                                                                         |
| 200-kc Sweep Width . . . . .     | 12 cps $\pm$ 2.5 cps                                                                    |
| 50-kc Sweep Width . . . . .      | 12 cps $\pm$ 2.5 cps                                                                    |
| 20-kc Sweep Width . . . . .      | 8 cps $\pm$ 2.0 cps                                                                     |
| 5-kc Sweep Width . . . . .       | 4 cps $\pm$ 1.0 cps                                                                     |

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# SPECIFICATIONS - (Cont'd)

## Resolution

|                              |                                                   |
|------------------------------|---------------------------------------------------|
| 200-kc Sweep Width . . . . . | Minimum 6-db valley between signals 6.0-kc apart  |
| 50-kc Sweep Width. . . . .   | Minimum 6-db valley between signals 2.5-kc apart  |
| 20-kc Sweep Width. . . . .   | Minimum 6-db valley between signals 1.2-kc apart  |
| 5-kc Sweep Width . . . . .   | Minimum 6-db valley between signals 250-cps apart |

Image Rejection . . . . . 50 db minimum

IF Rejection . . . . . 60 db minimum

Sensitivity . . . . . 5  $\mu$ v input at 500 kc produces at least one inch deflection on the CRT

Gain Control Range . . . . . 60 db minimum

## Crystal Marker

|                     |             |
|---------------------|-------------|
| Frequency . . . . . | 500 kc      |
| Tolerance . . . . . | $\pm$ 0.01% |

## Amplitude Scales

|                       |                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------|
| Linear . . . . .      | A signal 20-db down from the value that produces 100% vertical deflection will produce 10% deflection |
| Logarithmic . . . . . | A signal 40-db down from the value that produces 100% deflection will produce 10% deflection          |

CRT Display Type . . . . . 3XP2

Front Panel Controls. . . . . Center Frequency; Sweep Width; Gain; Marker On/Off; Vertical Display Lin/Log; Power; Intensity; Focus

Power Input. . . . . 115/230 volts, 50-400 cps

Power Consumption . . . . . 30 watts, approximately

Weight . . . . . 15 lbs, approximately

Size . . . . . 3.5-inches high, 19-inches wide, 15-inches deep

NOTE: A modification kit and instructions to modify the Collins 51J-4 or 51S-1 receivers are included with the SM-8511. Please specify receiver type when ordering.

PRICE: \$1,600.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and Specifications subject to change without notice.

10/5/64





# Technical Data

## TYPE SM-9310B SIGNAL MONITOR

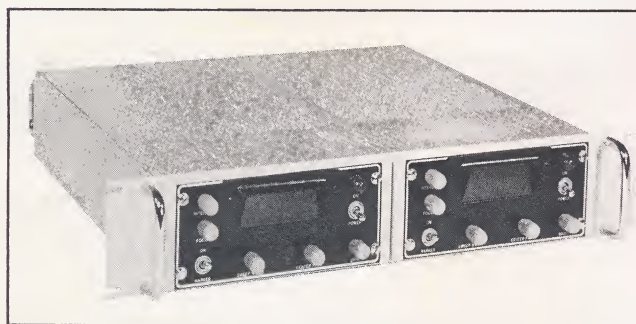


The CEI Type SM-9310B Signal Monitor has been designed for use with the CEI series of VHF and UHF receivers. It provides a visual display of signals in a band around the received signal.

The signal monitor employs the same design techniques used in CEI receivers, in which solid state devices are used for high performance, small size and low temperature rise.

The SM-9310B features a completely new transistorized sweep and horizontal deflection system, employing unique circuitry. Nuvisitors are used in the RF section. A highly stable RF sweep is provided by a variable-capacitance diode. A high order of sweep linearity is achieved by use of a unique solid state shaping network for the sweeping oscillator. Higher light output has resulted from the use of 1300 volts on the cathode-ray tube.

Base line breakup due to overload on strong signals, present in most signal monitors, has been eliminated in the SM-9310B by direct coupling of the detector to the CRT deflecting plates. This makes it possible to observe weak signals close to very strong signals.



### TYPE 9610 ALSO AVAILABLE

The Type 9610 Dual Signal Monitor employs two individual plug-in units. Performance of each single unit is identical to the SM-9310B with the addition of a 21.4 mc marker. This equipment was designed for monitoring two signals simultaneously such as from a VHF and UHF receiver. The panel height is 3.5 inches.

Price: \$1,800.00

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TWX: 301-365-8667

# SPECIFICATIONS, TYPE SM-9310B SIGNAL MONITOR

|                                           |                                                                                                                                       |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Display . . . . .                         | CRT Type 3XP1                                                                                                                         |
| Sweep Width . . . . .                     | Continuously adjustable 0 to 3 mc                                                                                                     |
| Flatness of response . . . . .            | Determined by RF response of receiver being employed;<br>particulars available on request.                                            |
| Input Center Frequency . . . . .          | 21.4 mc                                                                                                                               |
| Second IF Amplifier Frequency . . . . .   | 4.3 mc                                                                                                                                |
| Third IF Amplifier Frequency . . . . .    | 0.95 mc                                                                                                                               |
| Sensitivity for full deflection . . . . . | 10 microvolts maximum input to SM; 2.5 microvolts<br>input to receiver (typical)                                                      |
| Resolution. . . . .                       | Using approximately 100-kc sweep width, two signals<br>20-kc apart will be displayed with at least a 6-db valley<br>between the peaks |
| Power Input . . . . .                     | 117V, 50-400 cps, 17 watts                                                                                                            |
| Size . . . . .                            | 3.5" x 19" x 14"                                                                                                                      |
| Weight . . . . .                          | 13 lbs.                                                                                                                               |

## PRICE

\$850.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and Specifications subject to change without notice.

Other Signal Monitors are also available from CEI which have input center frequencies of 455-kc and 500-kc for use with HF receivers such as the R-390 and Collins Types 51J-4 and 51S-1. Ask for specifications on the CEI Types 8510, 8511, 8512, and 8513 Signal Monitors.

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# Technical Data

## TYPE 501 VHF RECEIVER



The CEI Type 501 Receiver is a compact, highly stable unit designed for the reception of AM, FM, and CW signals in the frequency range of 54 to 260 megacycles. The unit is useful as a general purpose laboratory receiver, and in telemetry and monitoring applications.

Two IF bandwidths are provided: 300 kc for AM, FM, and CW reception, and 10 kc for AM and CW. Receiver gain is AGC controlled for FM reception. For AM reception, gain may be controlled manually or by AGC. When the receiver is in the CW mode, gain must be manually controlled.

Features of the 501 are low power consumption (less than 30 watts), reduced size (3.5" panel height) and weight (less than 18 lbs). The 501 can be operated on 50-60 or 400 cps without modification. No blower for forced cooling is required.

Solid state plug-in circuits are employed for the audio amplifier, video amplifier, and audio squelch circuit. A crystal-controlled BFO and fine-tuning control are provided for maximum operational performance.

An output is provided for connection to a CEI signal monitor, for visual display of signals in a band around the received signal.

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## SPECIFICATIONS

|                                        |                                                                                                   |
|----------------------------------------|---------------------------------------------------------------------------------------------------|
| Frequency Range . . . . .              | 54-260 mc in one band                                                                             |
| Input Impedance . . . . .              | 50 ohms                                                                                           |
| Noise Figure . . . . .                 | 6 db, maximum                                                                                     |
| Oscillator Radiation . . . . .         | 40 $\mu$ v, maximum                                                                               |
| Image Rejection . . . . .              | 50 db, minimum                                                                                    |
| IF Rejection . . . . .                 | 70 db, minimum                                                                                    |
| IF Frequency . . . . .                 | 21.4 mc                                                                                           |
| IF Bandwidths . . . . .                | 300 kc: FM, AM, CW<br>10 kc: AM, CW                                                               |
| Sensitivity                            |                                                                                                   |
| FM (300-kc bandwidth) . . . . .        | 4 $\mu$ v input modulated at 1-kc rate with 100-kc deviation produces at least 23 db (s plus n)/n |
| AM (300-kc bandwidth) . . . . .        | 3 $\mu$ v input modulated 50% at 1-kc rate produces at least 10 db (s plus n)/n                   |
| AM (10-kc bandwidth) . . . . .         | 2 $\mu$ v input modulated 50% at 1-kc rate produces at least 21 db (s plus n)/n                   |
| FM Output Stability . . . . .          | Varies less than 2 db for inputs above 1.5 $\mu$ v                                                |
| Video Response . . . . .               | 10 cps to 150 kc                                                                                  |
| Video Bandwidth Control . . . . .      | 5 positions: 1, 3, 10, 30 and 150 kc                                                              |
| Video Output Level . . . . .           | Adjustable by front-panel control                                                                 |
| Beat Frequency Oscillator . . . . .    | Operates in both bandwidth positions                                                              |
| Squelch . . . . .                      | On audio channel                                                                                  |
| Monitor . . . . .                      | Audio amplifier and speaker                                                                       |
| Provision for Signal Monitor . . . . . | 21.4 mc output frequency                                                                          |
| Size . . . . .                         | 19-inches wide x 3-1/2-inches high x 15-1/2-inches deep                                           |
| Weight . . . . .                       | 18 pounds                                                                                         |
| Input Power . . . . .                  | 115 or 230 vac, 50-400 cps                                                                        |
| Power Consumption . . . . .            | 30 watts                                                                                          |

PRICE: \$1,600.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

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# Technical Data

## TYPES 970A AND 975 RECEIVERS



### TYPE 970A RECEIVER

The Types 970A and 975 Receivers are designed for the reception of AM, FM, CW and pulse signals in the VHF frequency range of 30-300 mc. Modern components and techniques have been used to obtain maximum performance and retain the advantages of small size and low power consumption. The Type 975 includes a carrier operated relay (COR) circuit not included in the Type 970A.

A feature of these receivers is the unique AGC circuit, which has a charge time sufficiently short to permit operation on pulse widths as narrow as 1 microsecond and a discharge time sufficiently long to operate with pulse repetition rates as low as 50 pps. The loop gain of the AGC circuitry will hold the output pulse amplitude within narrow limits with large RF input level changes.

The pulse handling capability and selectable IF bandwidths make these receivers very versatile instruments.

### SPECIFICATIONS

|                                                   |                                                                                                         |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Type of Reception . . . . .                       | AM, FM, CW, or Pulse; CW available on 60 kc bandwidth only                                              |
| Frequency Range . . . . .                         | 30-300 mc in two bands: Band A: 30-90 mc; Band B: 60-300 mc                                             |
| Signal Inputs . . . . .                           | Antenna input for Band A<br>Antenna input for Band B<br>Reference input for marker injection            |
| Signal Outputs . . . . .                          | Video output, audio output, signal monitor output, 21.4 mc IF output, local oscillator output           |
| Noise Figure . . . . .                            | Band A: 4.5 db, maximum; Band B: 7 db, maximum                                                          |
| Image Rejection . . . . .                         | Band A: 60 db, minimum; Band B: 50 db, minimum                                                          |
| IF Rejection . . . . .                            | Band A: 54 db, minimum to 40 mc, 60 db, minimum to 40-90 mc;<br>Band B: 80 db, minimum                  |
| Oscillator Radiation at Input of Receiver . . . . | Band A: 15 $\mu$ v, maximum; Band B: 15 $\mu$ v, maximum to 260 mc,<br>25 $\mu$ v, maximum above 260 mc |
| Antenna Input Impedance . . . . .                 | Band A: 50 $\Omega$ , nominal; Band B: 50 $\Omega$ , nominal                                            |
| IF Bandwidth . . . . .                            | 60 kc, 300 kc, and 3 mc switchable from front panel                                                     |
| IF Frequencies . . . . .                          | 21.4 mc; 2.5 mc, 60 kc bandwidth only                                                                   |

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# Gain Control Characteristics

|                                                                        |                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pulse AGC, 3-mc Bandwidth . . . . .                                    | Charge time is sufficiently short to permit pulse widths as narrow as 1 microsecond and as wide as a square wave. Discharge time is sufficiently long to operate with pulse repetition rates as low as 50 PPS.                                                                                           |
| Normal AGC . . . . .                                                   | Charge time: 0.3 sec, Discharge time: 0.3 sec                                                                                                                                                                                                                                                            |
| Manual Control . . . . .                                               | All IF's                                                                                                                                                                                                                                                                                                 |
| Over-all Pulse Response for 3-mc Bandwidth, Manual Operation . . . . . | Rise time or decay time no greater than 0.35 $\mu$ sec. Pulse sag no greater than 10% for an 800 $\mu$ sec pulse width.                                                                                                                                                                                  |
| Sensitivity                                                            |                                                                                                                                                                                                                                                                                                          |
| 60-kc Bandwidth . . . . .                                              | AM: 1.75 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 2 $\mu$ v input, modulated at 1 kc rate with 15 kc deviation, produces 21 db (s plus n)/n, minimum<br>FM Sensitivity: 0.7V per kc deviation, minimum<br>Pulse: -106 dbm tangential sensitivity, minimum  |
| 300-kc Bandwidth . . . . .                                             | AM: 4 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 4 $\mu$ v input, modulated at 1 kc rate with 100 kc deviation, produces 21 db (s plus n)/n, minimum<br>FM Sensitivity: 0.035V per kc deviation, minimum<br>Pulse: -99 dbm tangential sensitivity, minimum   |
| 3-mc Bandwidth . . . . .                                               | AM: 13 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 13 $\mu$ v input, modulated at 1 kc rate with 750 kc deviation, produces 21 db (s plus n)/n, minimum<br>FM Sensitivity: 0.007V per kc deviation, minimum<br>Pulse: -94 dbm tangential sensitivity, minimum |
| Video Output . . . . .                                                 | 0.7 volt rms across 100 $\Omega$ load                                                                                                                                                                                                                                                                    |
| Video Amplifier Response . . . . .                                     | Within 3 db from 20 cps to 2 mc                                                                                                                                                                                                                                                                          |
| FM Output Stability . . . . .                                          | Less than 2 db variation for inputs above 3.5 $\mu$ v                                                                                                                                                                                                                                                    |
| AM Output Stability . . . . .                                          | Less than 10 db variation for 70 db input change above 3.5 $\mu$ v                                                                                                                                                                                                                                       |
| Audio Output . . . . .                                                 | 0.1 watt across 600 $\Omega$ , balanced or unbalanced                                                                                                                                                                                                                                                    |
| Signal Monitor Output Frequency . . . . .                              | 21.4 mc                                                                                                                                                                                                                                                                                                  |
| Signal Monitor Output Bandwidth . . . . .                              | Compatible with CEI signal monitors to produce 3 mc display                                                                                                                                                                                                                                              |
| 21.4 mc IF Output . . . . .                                            | 100 mv min. into 50 $\Omega$ load, available during 3-mc operation only                                                                                                                                                                                                                                  |
| BFO . . . . .                                                          | Tunable over $\pm$ 15 kc, on 60 kc CW operation only                                                                                                                                                                                                                                                     |
| Local Oscillator Output . . . . .                                      | 50 mv min. across 50 $\Omega$                                                                                                                                                                                                                                                                            |
| Carrier Operated Relay (Type 975 only)                                 |                                                                                                                                                                                                                                                                                                          |
| Sensitivity . . . . .                                                  | Less than 1 $\mu$ v                                                                                                                                                                                                                                                                                      |
| Range . . . . .                                                        | Adjustable to operate over an input signal level range of 1 $\mu$ v to greater than 500 $\mu$ v                                                                                                                                                                                                          |
| Release Time . . . . .                                                 | Slow: 6 second, $\pm$ 20%; Fast: less than 0.5 second                                                                                                                                                                                                                                                    |
| Front Panel Switches . . . . .                                         | Power ON-OFF; RF band change; IF bandwidth selector;<br>Function: AM, FM, CW, pulse; AGC-Manual gain                                                                                                                                                                                                     |
| Front Panel Controls . . . . .                                         | BFO Pitch, RF Gain, Video Gain, Audio Gain, Fine Tuning and Tuning                                                                                                                                                                                                                                       |
| Front Panel Meters . . . . .                                           | Signal strength, for AM, FM, and pulse only. Tuning for AM and FM only                                                                                                                                                                                                                                   |
| Dial Accuracy . . . . .                                                | Band A: 0.5%; Band B: 0.75%                                                                                                                                                                                                                                                                              |
| Dial Resetability . . . . .                                            | Band A: 0.15%; Band B: 0.25%                                                                                                                                                                                                                                                                             |
| Power . . . . .                                                        | 115 vac, 50-400 cps; 45 watts, approximately                                                                                                                                                                                                                                                             |
| Size . . . . .                                                         | 19 inches x 3-1/2 inches x 16 inches, rack mounted                                                                                                                                                                                                                                                       |

PRICE: 970A - \$2,700.00  
975 - \$2,800.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

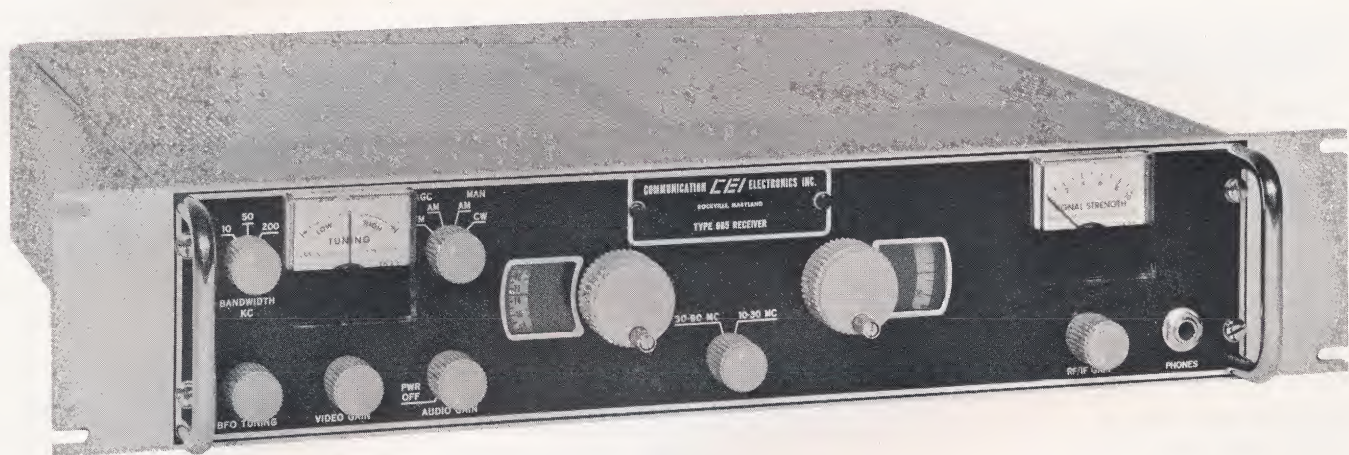
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# Technical Data

## TYPE 965 RECEIVER



The CEI Type 965 Receiver is designed for AM, FM, and CW reception in the frequency range of 10 to 90 mc. This frequency range is covered in two bands: 10 to 30 mc, and 30 to 90 mc. Separate RF tuners are used for each band. Three IF bandwidths are available: 10 kc, 50 kc, and 200 kc. The desired IF bandwidth is selected by means of a front-panel switch. A beat frequency oscillator for CW reception is available in all three bandwidth positions. Signal outputs from the receiver are audio output, video output, IF output, and an output to operate a signal monitor. The audio output is available at a front-panel phones jack, and at a terminal strip on the rear apron of the receiver. Nuvistor-type tubes are used in the two RF tuners. All other active elements are transistors.

### SPECIFICATIONS

|                                            |                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Type of Reception . . . . .                | AM-FM-CW                                                                                                |
| Frequency Range . . . . .                  | 10-90 mc in two bands: Band A, 10-30 mc; Band B, 30-90 mc                                               |
| Input Impedance . . . . .                  | 50 ohms, nominal                                                                                        |
| Noise Figure . . . . .                     | Band A, 8.0 db, maximum; Band B, 4.5 db, maximum                                                        |
| IF Frequency . . . . .                     | 21.4 mc                                                                                                 |
| IF Bandwidths . . . . .                    | 10 kc, 50 kc, or 200 kc, selectable from front panel                                                    |
| IF Rejection . . . . .                     | Band A, 50 db, minimum; Band B, 54 db, minimum                                                          |
| Oscillator to Antenna Conduction . . . . . | Band A, 15 $\mu$ v, maximum; Band B, 15 $\mu$ v, maximum                                                |
| Sensitivity                                |                                                                                                         |
| 10-kc IF Bandwidth . . . . .               | AM: 1.0 $\mu$ v input, modulated 50% at 1 kc rate produces 10 db (s plus n)/n, minimum                  |
| 50-kc IF Bandwidth . . . . .               | AM: 2.3 $\mu$ v input, modulated 50% at 1 kc rate produces 10 db (s plus n)/n, minimum                  |
|                                            | FM: 2.0 $\mu$ v input, modulated at 1 kc rate with 17 kc deviation produces 21 db (s plus n)/n, minimum |

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TWX: 301-365-8667

Sensitivity - (Cont'd)

|                                     |                                                                                                                                                                                                   |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 200-kc IF Bandwidth . . . . .       | AM: 4.7 $\mu$ v input, modulated 50% at 1 kc rate produces 10 db (s plus n)/n, minimum<br>FM: 4 $\mu$ v input, modulated at 1 kc rate with a 70 kc deviation produces 21 db (s plus n)/n, minimum |
| Image Rejection . . . . .           | Band A, 60 db minimum; Band B, 60 db minimum                                                                                                                                                      |
| Audio Output Power . . . . .        | 100 milliwatts, minimum, into 600-ohm load, balanced or unbalanced                                                                                                                                |
| Audio Response . . . . .            | Within 3 db from 100 cps to 40 kc                                                                                                                                                                 |
| Video Output . . . . .              | 5 volt, rms, across a 10K-ohm load                                                                                                                                                                |
| Video Response . . . . .            | Within 3 db from 50 cps to 150 kc                                                                                                                                                                 |
| IF Output . . . . .                 | 21.4-mc center frequency output; output level 100 mv into 50 $\Omega$ load for input signal levels above AGC threshold                                                                            |
| Signal Monitor Output . . . . .     | 21.4-mc center frequency IF signal output                                                                                                                                                         |
| Output Stability with AGC . . . . . | AM: Output varies less than 3 db for input levels from 4 $\mu$ v to 10 mv<br>FM: Output varies less than 3 db for input levels above 1.5 $\mu$ v                                                  |
| BFO . . . . .                       | Variable $\pm$ 20 kc                                                                                                                                                                              |
| Power Input . . . . .               | 115 vac, 50-400 cps                                                                                                                                                                               |
| Power Consumption . . . . .         | 20 watts, approximately                                                                                                                                                                           |
| Weight . . . . .                    | 17 pounds, approximately                                                                                                                                                                          |
| Dimensions . . . . .                | 19 inches wide x 3.5 inches high x 15.5 inches deep                                                                                                                                               |

PRICE: \$2,900.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

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# Technical Data

## TYPES 701A AND 702A UHF RECEIVERS



### TYPE 702A RECEIVER

The Types 701A and 702A Receivers were designed to meet the highest possible performance requirements for UHF receivers in critical reconnaissance work. They feature extremely low oscillator radiation, low noise, small size, light weight, and low power consumption.

Both receiver types tune the range of 235 to 1000 mc in two bands, and are identical except that the type 702A has a 50-kc bandwidth IF in addition to the 300-kc bandwidth IF and 2-mc bandwidth IF strips present in the type 701A. In either type receiver, the 2-mc bandwidth IF operates continuously and provides simultaneous AM and FM outputs.

The receivers are designed to handle either amplitude modulated, frequency modulated, or continuous wave signals. A beat frequency oscillator is provided for the reception of CW signals. Both receiver types are equipped with a transistorized carrier operated relay used to control external devices as a function of the received carrier level.

The receivers were designed using both solid state and vacuum (Nuvistor type) devices for compactness, efficiency, and high performance. Both units have a self-contained power supply and are constructed for mounting in a standard 19-inch rack. The panel height is only 3.5-inches.

### SPECIFICATIONS

|                                             |                                                                      |
|---------------------------------------------|----------------------------------------------------------------------|
| Type of Reception .....                     | AM, FM, and CW                                                       |
| Frequency Range .....                       | 235 to 1000 mc in two bands: Band A, 235-500 mc; Band B, 490-1000 mc |
| Dial Accuracy .....                         | ±1%                                                                  |
| Fine Tuning .....                           | Front panel control provided for vernier tuning                      |
| Input Impedance .....                       | One input for each band at 50 ohms, type N connectors                |
| Noise Figure .....                          | Band A, 10 db, maximum; Band B, 12 db, maximum                       |
| Image Rejection .....                       | Band A, 65 db, minimum; Band B, 75 db, minimum                       |
| I.F. Rejection .....                        | Band A, 80 db, minimum; Band B, 90 db, minimum                       |
| Oscillator Radiation at Antenna Input ..... | Band A, 8 $\mu$ v, maximum; Band B, 75 $\mu$ v, maximum              |
| Local Oscillator Frequencies                |                                                                      |
| First Local Oscillator .....                | Incoming signal plus 60 mc                                           |
| Second Local Oscillator .....               | 81.4 mc, crystal controlled                                          |

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6006 EXECUTIVE BOULEVARD

ROCKVILLE, MARYLAND, 20852

TWX: 301-365-8667



|                                   |                                                                                                                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intermediate Frequencies .....    | 60 mc and 21.4 mc                                                                                                                                                                                          |
| I.F. Bandwidths                   |                                                                                                                                                                                                            |
| Type 701A Receiver .....          | 2 mc and 300 kc, operating simultaneously                                                                                                                                                                  |
| Type 702A Receiver .....          | 2 mc operating continuously, and either 300 kc or 50 kc, selectable from front panel                                                                                                                       |
| Sensitivity                       |                                                                                                                                                                                                            |
| 2-mc Bandwidth .....              | AM: 22 $\mu$ v, modulated 50% at 1 kc rate, produces at least 10 db (s plus n)/n ratio.<br>FM: 24 $\mu$ v, modulated at 1 kc rate with 750 kc deviation, produces at least 21 db (s plus n)/n ratio.       |
| 300-kc Bandwidth .....            | AM: 8 $\mu$ v, modulated 50% at 1 kc rate, produces at least 10 db (s plus n)/n ratio.<br>FM: 8 $\mu$ v, modulated at 1 kc rate with 100 kc deviation, produces at least 21 db (s plus n)/n ratio.         |
| 50-kc Bandwidth .....             | AM: 3.5 $\mu$ v, modulated 50% at 1 kc rate, produces at least 10 db (s plus n)/n ratio.                                                                                                                   |
| (Type 702A only)                  | FM: 4 $\mu$ v, modulated at 1 kc rate with 15 kc deviation, produces at least 21 db (s plus n)/n ratio.                                                                                                    |
| Output Stability                  |                                                                                                                                                                                                            |
| 2-mc Bandwidth .....              | AM: Output varies less than 4 db for an input range of 8 $\mu$ v to 1 mv<br>FM: Output varies less than 4 db for input levels greater than 8 $\mu$ v                                                       |
| 300-kc Bandwidth .....            | AM: Output varies less than 4 db for an input range of 4 $\mu$ v to 1 mv<br>FM: Output varies less than 2 db for input levels greater than 3 $\mu$ v                                                       |
| 50-kc Bandwidth .....             | AM: Output varies less than 4 db for an input range of 4 $\mu$ v to 1 mv                                                                                                                                   |
| (Type 702A only)                  | FM: Output varies less than 2 db for input levels greater than 3 $\mu$ v                                                                                                                                   |
| Manual Gain Control Range .....   | Greater than 100 db in AM/MAN and CW modes                                                                                                                                                                 |
| Video Output                      |                                                                                                                                                                                                            |
| 2-mc Bandwidth .....              | AM: 0.7 volt, rms, across 93 ohms. Amplifier response, less than 3 db variation from 30 cps to 2 mc.<br>FM: 0.7 volt, rms, across 93 ohms. Amplifier response, less than 3 db variation from dc to 2 mc.   |
| 300-kc and 50-kc Bandwidths ..... | 5 volts, rms, across 10K ohms. Amplifier response, less than 3 db variation from 50 cps to 500 kc                                                                                                          |
| Audio Output .....                | 100 mw into 600 ohms. Amplifier response, 100 cps to 40 kc at 3 db points.                                                                                                                                 |
| FM Deviation Sensitivity          |                                                                                                                                                                                                            |
| 2-mc Bandwidth .....              | Less than 175-kc deviation produces 0.1 volt, rms                                                                                                                                                          |
| 300-kc Bandwidth .....            | 50 KC deviation produces 5 volts, rms with max Video Gain                                                                                                                                                  |
| Beat Frequency Oscillator .....   | Crystal-controlled at 21.4 mc; operates with 300-kc or 50-kc bandwidths in CW mode                                                                                                                         |
| Signal Monitor Output .....       | 21.4 mc center frequency output signal provided for use with CEI Signal Monitors.                                                                                                                          |
| Front Panel Controls .....        | Function: FM, AM/AGC, AM/MAN, CW; IF BANDWIDTH (Type 702A only): 300 KC, 50 KC; VIDEO GAIN; POWER: ON-OFF; AUDIO GAIN; Bandswitch; FINE TUNING; IF GAIN; COR SENSITIVITY; COR DELAY: FAST-SLOW; BFO TUNING |
| Meters .....                      | Tuning and Signal Strength                                                                                                                                                                                 |
| Carrier Operated Relay            |                                                                                                                                                                                                            |
| Sensitivity .....                 | Less than 1 $\mu$ v                                                                                                                                                                                        |
| Range .....                       | Adjustable to operate over an input signal level range of 1 $\mu$ v to greater than 500 $\mu$ v                                                                                                            |
| Release Time .....                | Slow: 6 seconds, $\pm 20\%$ ; Fast: less than 0.5 second                                                                                                                                                   |
| Output .....                      | SPDT contacts                                                                                                                                                                                              |
| Power Input .....                 | 115/230 volts, 50-400 cps                                                                                                                                                                                  |
| Power Consumption .....           | 63 watts nominal                                                                                                                                                                                           |
| Weight .....                      | 21 lbs                                                                                                                                                                                                     |
| Size .....                        | 3.5-inches high, 19-inches wide, and 15-inches deep                                                                                                                                                        |

PRICE: Type 701A- \$3000.00  
Type 702A- \$3500.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

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# Technical Data

## TYPES 770A AND 775 RECEIVERS



### TYPE 770A RECEIVER

The Types 770A and 775 Receivers are designed for the reception of AM, FM, CW, and pulse signals in the UHF frequency range of 490 to 1000 mc. Modern components and techniques have been used to obtain maximum performance and retain the advantages of small size and low power consumption. The Type 775 includes a carrier operated relay (COR) circuit not included in the Type 770A.

A feature of these receivers is the unique AGC circuit, which has a charge time sufficiently short to permit operation on pulse widths as narrow as 1 microsecond and a discharge time sufficiently long to operate with pulse repetition rates as low as 50 pps. The loop gain of the AGC circuitry will hold the output pulse amplitude within narrow limits with large RF input level changes.

The pulse handling capability and selectable IF bandwidths make these receivers very versatile instruments.

### SPECIFICATIONS

|                                                     |                                                                                                                                                                                                                   |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of Reception . . . . .                         | AM, FM, CW, and Pulse; CW available on 100-kc bandwidth only                                                                                                                                                      |
| Frequency Range . . . . .                           | 235-1000 mc in two bands: Band A: 235-500 mc; Band B: 490-1000 mc                                                                                                                                                 |
| Signal Inputs . . . . .                             | Antenna input for Band A<br>Antenna input for Band B<br>Reference input for marker injection                                                                                                                      |
| Signal Outputs . . . . .                            | Video output, audio output, signal monitor output, 21.4 mc IF output, local oscillator output                                                                                                                     |
| Noise Figure . . . . .                              | Band A: 10 db maximum; Band B: 12 db maximum                                                                                                                                                                      |
| Image Rejection . . . . .                           | Band A: 65 db minimum; Band B: 75 db minimum                                                                                                                                                                      |
| IF Rejection . . . . .                              | Band A: 80 db minimum; Band B: 90 db minimum                                                                                                                                                                      |
| Oscillator Radiation at Input of Receiver . . . . . | Band A: 8 $\mu$ v maximum; Band B: 75 $\mu$ v maximum                                                                                                                                                             |
| Antenna Input Impedance . . . . .                   | Band A: 50 $\Omega$ , nominal; Band B: 50 $\Omega$ , nominal                                                                                                                                                      |
| IF Bandwidth . . . . .                              | 100 kc, 500 kc, and 4 mc switchable from front panel                                                                                                                                                              |
| IF Frequencies . . . . .                            | 60 mc; 21.4 mc; 2.5 mc, 100-kc bandwidth only                                                                                                                                                                     |
| Gain Control Characteristics                        |                                                                                                                                                                                                                   |
| Pulse AGC, 4-mc Bandwidth . . . . .                 | Charge time is sufficiently short to permit pulse widths as narrow as 1 microsecond and as wide as a square wave.<br>Discharge time is sufficiently long to operate with pulse repetition rates as low as 50 pps. |

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# Gain Control Characteristics (Cont'd)

|                                                      |                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Normal AGC . . . . .                                 | Charge time: 0.3 sec, Discharge time: 0.3 sec                                                                                                                                                                                                                                                           |
| Manual Control . . . . .                             | All IF's                                                                                                                                                                                                                                                                                                |
| Over-all Pulse Response for 4-mc Bandwidth . . . . . | Rise time or decay time no greater than 0.35 $\mu$ sec. Pulse sag no greater than 10% for an 800 $\mu$ sec pulse width.                                                                                                                                                                                 |
| Sensitivity                                          |                                                                                                                                                                                                                                                                                                         |
| 100-kc Bandwidth . . . . .                           | AM: 5 $\mu$ v input, modulated 50% at 1-kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 5 $\mu$ v input, modulated at 1-kc rate with 30-kc deviation, produces 21 db (s plus n)/n, minimum<br>FM Sensitivity: 0.1V per kc deviation, minimum<br>Pulse: -100 dbm tangential sensitivity, minimum    |
| 500-kc Bandwidth . . . . .                           | AM: 11 $\mu$ v input, modulated 50% at 1-kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 11 $\mu$ v input, modulated at 1-kc rate with 150-kc deviation, produces 21 db (s plus n)/n, minimum<br>FM Sensitivity: 0.02V per kc deviation, minimum<br>Pulse: -93 dbm tangential sensitivity, minimum |
| 4-mc Bandwidth . . . . .                             | AM: 30 $\mu$ v input, modulated 50% at 1-kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 30 $\mu$ v input, modulated at 1-kc rate with 1-mc deviation, produces 21 db (s plus n)/n, minimum<br>FM Sensitivity: 0.004V per kc deviation, minimum<br>Pulse: -88 dbm tangential sensitivity, minimum  |
| Audio Output . . . . .                               | 0.1 watt across 600 $\Omega$ , balanced or unbalanced                                                                                                                                                                                                                                                   |
| Video Output . . . . .                               | 0.7 volt rms across 100-ohm load                                                                                                                                                                                                                                                                        |
| Video Amplifier Response . . . . .                   | Within 3 db from 20 cps to 2 mc                                                                                                                                                                                                                                                                         |
| FM Output Stability . . . . .                        | Less than 2-db variation for inputs above 10 $\mu$ v                                                                                                                                                                                                                                                    |
| AM Output Stability . . . . .                        | Less than 10-db variation for 70-db input change above 10 $\mu$ v                                                                                                                                                                                                                                       |
| Signal Monitor Output Frequency . . . . .            | 21.4 mc                                                                                                                                                                                                                                                                                                 |
| Signal Monitor Output Bandwidth . . . . .            | Compatible with CEI signal monitors to produce 3-mc display                                                                                                                                                                                                                                             |
| 21.4-mc IF Output . . . . .                          | 100 mv minimum into 50-ohm load available during 4-mc operation only                                                                                                                                                                                                                                    |
| Local Oscillator Output . . . . .                    | 50 mv minimum across 50 $\Omega$                                                                                                                                                                                                                                                                        |
| Beat Frequency Oscillator . . . . .                  | Tunable over $\pm$ 15 kc on 100-kc CW operation only                                                                                                                                                                                                                                                    |
| Carrier Operated Relay (Type 775 only)               |                                                                                                                                                                                                                                                                                                         |
| Sensitivity . . . . .                                | Less than 1 $\mu$ v                                                                                                                                                                                                                                                                                     |
| Range . . . . .                                      | Adjustable to operate over an input signal level range of 1 $\mu$ v to greater than 500 $\mu$ v                                                                                                                                                                                                         |
| Release Time . . . . .                               | Slow: 6 second $\pm$ 20%; Fast: less than 0.5 second                                                                                                                                                                                                                                                    |
| Front Panel Switches . . . . .                       | Power ON-OFF: RF tuning band, IF bandwidth selector, Function: AM, FM, CW, Pulse; Gain Control: AGC-Manual                                                                                                                                                                                              |
| Front Panel Controls . . . . .                       | BFO Pitch, RF Gain, Video Gain, Audio Gain, Fine Tuning and Tuning                                                                                                                                                                                                                                      |
| Front Panel Meters . . . . .                         | Signal Strength, for AM, FM, and Pulse only; Tuning for AM and FM only                                                                                                                                                                                                                                  |
| Dial Accuracy . . . . .                              | Band A: 0.5%; Band B: 1.0%                                                                                                                                                                                                                                                                              |
| Dial Resetability . . . . .                          | 0.25% (Fine tuning provided)                                                                                                                                                                                                                                                                            |
| Power . . . . .                                      | 115 vac, 50-400 cps, 60 watts (approximately)                                                                                                                                                                                                                                                           |
| Size . . . . .                                       | 19 inches x 3.5 inches x 16 inches, rack mounted                                                                                                                                                                                                                                                        |

PRICE: 770A - \$3,700.00  
775 - \$3,800.00

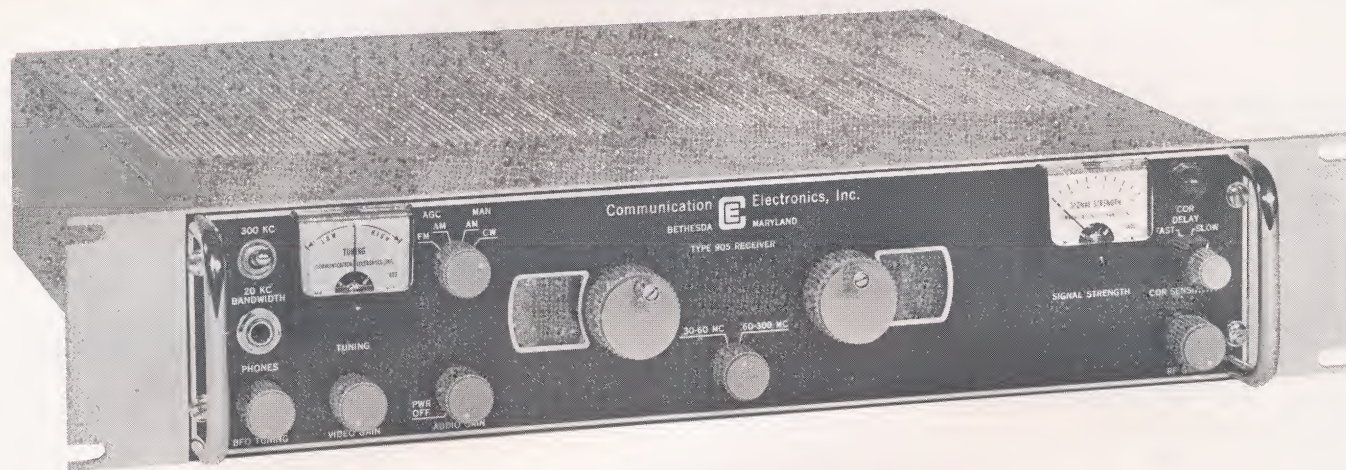
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# Technical Data

## TYPES 901A, 904, 905, AND 906 VHF RECEIVERS



### TYPE 905 RECEIVER

The CEI Type 901A, 904, 905, and 906 Receivers were designed to fulfill a need for compact, high performance VHF receivers covering the frequency range of 30 to 300 mc. These four receiver types are identical except that the types 904 and 906 receivers contain a crystal marker oscillator not included in the 901A and 905, and the types 905 and 906 contain a carrier operated relay not included in the 901A and 904.

The receivers are designed for the reception of AM, FM, and CW signals. A beat frequency oscillator is activated when the receivers are in the CW mode. IF bandwidths of 300 kc and 20 kc are provided; the bandwidth in operation is controlled by a front-panel switch.

The crystal marker oscillator (Type CMO-21) used in the types 904 and 906 Receivers is a dual unit which provides either 5-mc or 1-mc markers as controlled by a front-panel switch.

The carrier operated relay (Type COR-11) employed in the types 905 and 906 receivers provides for the control of external devices as a function of the received carrier level. Front-panel controls allow the sensitivity and release time of the COR to be varied.

All four receiver types were designed for mounting in a standard 19-inch rack; they require 3.5-inches of vertical rack space. The power consumption of each type is approximately 40 watts.

### SPECIFICATIONS

|                                             |                                                                       |
|---------------------------------------------|-----------------------------------------------------------------------|
| Type of Reception .....                     | AM, FM, and CW                                                        |
| Frequency Range .....                       | 30 to 300 mc in two bands: Band A, 30-60 mc; Band B, 60-300 mc        |
| Dial Accuracy .....                         | ±1%                                                                   |
| Input Impedance .....                       | 50 ohms, type BNC connector                                           |
| Noise Figure .....                          | Band A: 4 db, maximum; Band B: 6.5 db, maximum                        |
| Image Rejection .....                       | Band A: 60 db, minimum; Band B: 50 db, minimum                        |
| IF Rejection .....                          | 54 db, minimum, at 30 mc; 80 db, minimum, above 50 mc                 |
| Oscillator Radiation at Antenna Input ..... | 15 $\mu$ v, maximum, below 260 mc; 25 $\mu$ v, maximum, above 260 mc. |
| Local Oscillator Frequency .....            | Incoming signal frequency plus 21.4 mc                                |
| Intermediate Frequency .....                | 21.4 mc                                                               |

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|                                                       |                                                                                                                                                                                                             |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IF Bandwidths .....                                   | 300 kc or 20 kc, selectable by front-panel control                                                                                                                                                          |
| Sensitivity                                           |                                                                                                                                                                                                             |
| 20-kc Bandwidth .....                                 | AM: 1 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 2 $\mu$ v input modulated at 1 kc rate with 7 kc deviation, produces 21 db (s plus n)/n, minimum               |
| 300-kc Bandwidth .....                                | AM: 4 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 4 $\mu$ v input, modulated at 1 kc rate with 100 kc deviation, produces 21 db (s plus n)/n, minimum            |
| Output Stability .....                                | AM: Output varies less than 2 db for an input signal level range of 3 $\mu$ v to 10,000 $\mu$ v<br>FM: Output varies less than 2 db for input signal levels above 1.5 $\mu$ v                               |
| Manual Gain Control Range .....                       | 100 db, minimum                                                                                                                                                                                             |
| Video Output Level .....                              | 5 volts, rms, across a 10K ohm unbalanced load                                                                                                                                                              |
| Video Amplifier Response .....                        | Less than 3 db variation from 100 cps to 60 kc                                                                                                                                                              |
| Audio Output Level .....                              | 100 mw into a 600 ohm balanced or unbalanced load                                                                                                                                                           |
| Audio Amplifier Response .....                        | 100 cps to 40 kc at 3 db points                                                                                                                                                                             |
| FM Deviation Sensitivity .....                        | 50 kc deviation produces 5 volts, peak-to-peak, with maximum VIDEO GAIN                                                                                                                                     |
| BFO .....                                             | 21.4 mc, adjustable $\pm$ 20 kc; operates in CW mode                                                                                                                                                        |
| Signal Monitor Output .....                           | 21.4 mc center-frequency output provided for use with CEI Signal Monitors                                                                                                                                   |
| Meters .....                                          | Tuning, Signal Strength                                                                                                                                                                                     |
| Carrier Operated Relay<br>(Types 905 and 906 only)    |                                                                                                                                                                                                             |
| Sensitivity .....                                     | Less than 1 $\mu$ v                                                                                                                                                                                         |
| Range .....                                           | Adjustable to operate over an input signal level range of 1 $\mu$ v to greater than 500 $\mu$ v                                                                                                             |
| Release Time .....                                    | Slow: 6 seconds, $\pm$ 20%; Fast: less than 0.5 second                                                                                                                                                      |
| Output .....                                          | SPDT contacts                                                                                                                                                                                               |
| Crystal Marker Oscillator<br>(Types 904 and 906 only) |                                                                                                                                                                                                             |
| Outputs .....                                         | 1.0 mc or 5.0 mc (harmonics to 300 mc)                                                                                                                                                                      |
| Frequency Stability .....                             | $\pm$ 0.005% from 0° to 120°F                                                                                                                                                                               |
| Front Panel Controls .....                            | IF BANDWIDTH: 300 KC-20 KC; BFO TUNING; VIDEO GAIN; AUDIO GAIN: POWER; Bandswitch; RF GAIN; COR SENSITIVITY (905, 906 only); COR DELAY: FAST-SLOW (905, 906 only); CMO: RECEIVER-5 MC-10 MC (904, 906 only) |
| Power Input .....                                     | 115 volts, 50-400 cps                                                                                                                                                                                       |
| Power Consumption .....                               | 40 watts, approximately                                                                                                                                                                                     |
| Weight .....                                          | 18 lbs, approximately                                                                                                                                                                                       |
| Size .....                                            | 19-inches wide, 3.5-inches high, and 15.5-inches deep                                                                                                                                                       |

PRICE: Type 901A- \$1925.00  
Type 904- \$2075.00  
Type 905- \$2025.00  
Type 906- \$2175.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

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# Technical Data

## TYPE RS-111-1B VHF-UHF RECEIVING SYSTEM



The RS-111-1B VHF-UHF Receiving System provides AM-FM-CW reception over the 30-1000 mc frequency range in four bands. A visual display of signals in a band around the received signal is provided. This complete frequency coverage and visual display is packaged into a 5.25-inch high unit designed for rack mounting. Audio and video outputs are provided from a 2-mc IF strip and a selectable 20-kc/75-kc/300-kc IF strip simultaneously. Nuvisitors and transistors are used throughout to reduce weight and power consumption.

### SPECIFICATIONS

|                                  |                                                                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of Reception                | AM, FM, CW                                                                                                                                                         |
| Frequency Range                  | 30-1000 mc in four bands: Band A, 30-60 mc; Band B, 60-300 mc; Band C, 235-500 mc; Band D, 490-1000 mc                                                             |
| Input Impedance                  | To operate from 50-ohm source                                                                                                                                      |
| Noise Figure                     | Band A, 4 db max; Band B, 6.5 db max; Band C, 10 db max; Band D, 12 db max                                                                                         |
| Image Rejection                  | Band A, 60 db min; Band B, 50 db min; Band C, 65 db min; Band D, 75 db min                                                                                         |
| IF Rejection                     | Band A, 54 db min; Band B, 80 db min; Band C, 80 db min; Band D, 90 db min                                                                                         |
| Oscillator to Antenna Conduction | Band A, 15 $\mu$ v max; Band B, 15 $\mu$ v max from 60-260 mc and 25 $\mu$ v max from 260-300 mc; Band C, 8 $\mu$ v max; Band D, 75 $\mu$ v max                    |
| IF Bandwidths                    | Four total, two operating simultaneously: 2 mc and either 20 kc, 75 kc, or 300 kc selectable from front panel.                                                     |
| Band A and Band B Sensitivity    |                                                                                                                                                                    |
| 20-kc Bandwidth                  | AM: 1 $\mu$ v input, modulated 50%, produces 10 db (s plus n)/n min<br>FM: 2 $\mu$ v input, modulated at 1 kc with 7-kc deviation, produces 21 db (s plus n)/n min |

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# Band A and Band B Sensitivity (cont'd)

|                            |                                                                                                                                                                        |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 75-kc Bandwidth . . . . .  | AM: 2 $\mu$ v input, modulated 50%, produces 10 db (s plus n)/n min<br>FM: 3 $\mu$ v input, modulated at 1 kc with 25-kc deviation, produces 21 db (s plus n)/n min    |
| 300-kc Bandwidth . . . . . | AM: 4 $\mu$ v input, modulated 50%, produces 11 db (s plus n)/n min<br>FM: 4 $\mu$ v input, modulated at 1 kc with 100-kc deviation, produces 21 db (s plus n)/n min   |
| 2-mc Bandwidth . . . . .   | AM: 11 $\mu$ v input, modulated 50%, produces 10 db (s plus n)/n min<br>FM: 12 $\mu$ v input, modulated at 1 kc with 750-kc deviation, produces 21 db (s plus n)/n min |

# Band C and Band D Sensitivity

|                            |                                                                                                                                                                        |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20-kc Bandwidth . . . . .  | AM: 2 $\mu$ v input, modulated 50%, produces 10 db (s plus n)/n min<br>FM: 4 $\mu$ v input, modulated at 1 kc with 7-kc deviation, produces 21 db (s plus n)/n min     |
| 75-kc Bandwidth . . . . .  | AM: 8 $\mu$ v input, modulated 50%, produces 17 db (s plus n)/n min<br>FM: 6 $\mu$ v input, modulated at 1 kc with 25-kc deviation, produces 21 db (s plus n)/n min    |
| 300-kc Bandwidth . . . . . | AM: 8 $\mu$ v input, modulated 50%, produces 10 db (s plus n)/n min<br>FM: 8 $\mu$ v input, modulated at 1 kc with 100-kc deviation, produces 21 db (s plus n)/n min   |
| 2-mc Bandwidth . . . . .   | AM: 22 $\mu$ v input, modulated 50%, produces 10 db (s plus n)/n min<br>FM: 24 $\mu$ v input, modulated at 1 kc with 750-kc deviation, produces 21 db (s plus n)/n min |

# Band A and Band B Output Stability

|                                         |                                                                                                                                                      |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20-kc/75-kc/300-kc Bandwidths . . . . . | AM: Output varies less than 3 db for input range of 2 to 10,000 $\mu$ v<br>FM: Output varies less than 2 db for input range of 1.5 to 10,000 $\mu$ v |
| 2-mc Bandwidth . . . . .                | AM: Output varies less than 4 db for input range of 4 to 10,000 $\mu$ v<br>FM: Output varies less than 4 db for input range of 4 to 10,000 $\mu$ v   |

# Band C and Band D Output Stability

|                                        |                                                                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 20-kc/75-kc/300-kc Bandwidth . . . . . | AM: Output varies less than 4 db for input range of 4 to 10,000 $\mu$ v<br>FM: Output varies less than 2 db for input range of 3 to 10,000 $\mu$ v |
| 2-mc Bandwidth . . . . .               | AM: Output varies less than 4 db for input range of 8 to 10,000 $\mu$ v<br>FM: Output varies less than 4 db for input range of 8 to 10,000 $\mu$ v |

# Outputs from 20-kc/75-kc/300-kc Bandwidth

|                                    |                                                          |
|------------------------------------|----------------------------------------------------------|
| Audio Amplifier Response . . . . . | Within 3 db from 100 cps to 40 kc                        |
| Audio Output Power. . . . .        | 0.1 watt, min, into 600-ohm load, balanced or unbalanced |
| Video Amplifier Response . . . . . | Within 3 db from 50 cps to 150 kc                        |
| Video Output Level. . . . .        | 5 volts rms across a 10K unbalanced load                 |

# Outputs from 2-mc Bandwidth

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| FM Video Amplifier Response. . . . . | Within 3 db from dc to 1 mc       |
| AM Video Amplifier Response. . . . . | Within 3 db from 30 cps to 1 mc   |
| FM Video Output Level. . . . .       | 0.7 volt rms across a 93-ohm load |
| AM Video Output Level. . . . .       | 0.7 volt rms across a 93-ohm load |

# Fine Tuning . . . . .

Operates on all bands

# Beat Frequency Oscillator . . . . .

Operates in CW mode on either 20-kc, 75-kc, or 300-kc IF bandwidths

# Meter . . . . .

Tuning

# Frequency Display Section

|                                           |                                                                                                                                 |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Sweep Linearity . . . . .                 | Within 5% of sweep width                                                                                                        |
| Sweep Width . . . . .                     | Continuously adjustable from 0 to 3 mc                                                                                          |
| Sensitivity for Full Deflection . . . . . | 2.5 $\mu$ v input to receiver                                                                                                   |
| Resolution . . . . .                      | Using approximately 100-kc sweep width, two signals 20-kc apart will be displayed with at least a 6-db valley between the peaks |

# Power Input . . . . .

115/230 volts, 50-400 cps

# Power Consumption . . . . .

45 watts, approximately

# Weight. . . . .

35 lbs., approximately

# Size . . . . .

5.25-inches high x 19-inches wide x 15.5-inches deep

Price: \$6,750.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and Specifications subject to change without notice.

10/23/64





# Technical Data

## TYPE IFC-50 INTERMEDIATE FREQUENCY CONVERTER



The IFC-50 Intermediate Frequency Converter has been specifically designed to work in conjunction with the Collins Model 51J-4 and 51S-1 communications receivers. The purpose of the IF converter unit is to allow reception of transmissions which require greater bandwidths than are now available in the receivers. A front-panel switch on the IF converter unit selects either 15 kc, 25 kc or 50 kc over-all bandwidth.

The IF center frequency is reduced to 25 kc in the converter unit to allow direct recording of the IF signal.

Either manual or automatic gain control may be selected by a front panel control.

### SPECIFICATIONS

|                         |                             |
|-------------------------|-----------------------------|
| Input Center Frequency  | 500 kc                      |
| Output Center Frequency | 25 kc                       |
| Over-all Bandwidth      | 15 kc, 25 kc or 50 kc       |
| Oscillator Frequency    | 475 kc                      |
| Input Impedance         | 50 $\Omega$ , approximately |
| Output Impedance        | 600 $\Omega$ , nominal      |
| Maximum Power Output    | 20 mw                       |
| Nominal Input Voltage   | 115 vac, 50-400 cps         |
| Power Consumption       | 17 watts                    |
| Size                    | 3-1/2" x 19" x 14" deep     |
| Weight                  | 15 lbs., approx.            |

Price \$700.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

9/18/64

**Communication Electronics Incorporated**

301  
AREA CODE 933-2800

6006 EXECUTIVE BOULEVARD

ROCKVILLE, MARYLAND, 20852

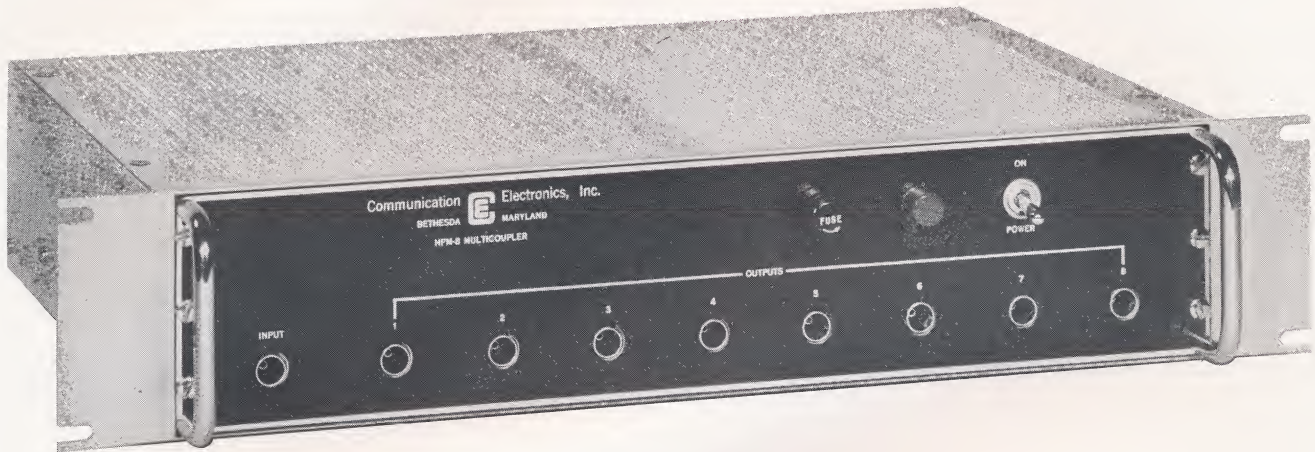
TWX: 301-365-8667





# Technical Data

## TYPE HFM-8 MULTICOUPLER



The CEI HFM-8 series Multicouplers provide optimum coupling between a single antenna and as many as eight receivers in the 2-30 mc frequency range. Compact in size (only 3.5-inches high), the HFM-8 provides a nominal gain of 8 db, a low noise figure of 10 db max., and high isolation between all outputs while keeping the intermodulation to a minimum. The use of Nuvistors keeps the power consumption at a minimum while providing high reliability. Quick change connectors are provided on the front panel of the type HFM-8 and on the rear apron of the HFM-8-1; BNC connectors on the front panel of the HFM-8-2 and on the rear apron of the HFM-8-3. The input and output impedance is normally supplied at 75 ohms, but other impedances can be provided.

### SPECIFICATIONS

|                                  |                                              |
|----------------------------------|----------------------------------------------|
| Frequency Range . . . . .        | 2-30 mc, flat $\pm 2$ db                     |
| Input Impedance . . . . .        | 75 ohms                                      |
| Gain . . . . .                   | 8 db nominal                                 |
| Noise Figure. . . . .            | 10 db maximum                                |
| RF Connectors. . . . .           | Coaxial quick change (RCA dimensions) or BNC |
| Isolation between Outputs . . .  | 50 db minimum                                |
| Isolation, Output to Input . . . | 60 db minimum                                |
| Output Impedance . . . . .       | 75 ohms                                      |
| Size . . . . .                   | 19 inches x 3.5 inches x 11 inches           |
| Mounting . . . . .               | Standard 19-inch relay rack mount            |
| Weight . . . . .                 | 8 lbs., approximately                        |
| Power. . . . .                   | 115/230 v, 50/60/400 cps, 32 watts           |

Price: \$400.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

|                        |                                                  |         |
|------------------------|--------------------------------------------------|---------|
| Available Accessories: | High pass filter HPF-2 (Attenuates below 2 mc)   | \$25.00 |
|                        | Coaxial Plug (Use with Models HFM-8 and HFM-8-1) | \$ 5.00 |

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# Technical Data

## TYPE FE-25-1 FREQUENCY EXTENDER



Designed for use with any receiver tuning to 60 mc, the CEI Type FE-25-1 Frequency Extender provides additional coverage in the UHF spectrum from 235 mc to 1000 mc.

Among the outstanding features of this instrument are extremely low oscillator radiation, low power consumption, small size, and light weight.

The FE-25-1 is designed and produced with the same care and attention to detail as given to the CEI line of receivers. It makes an ideal companion piece to the other CEI units.

### SPECIFICATIONS

|                            |                                                                                         |
|----------------------------|-----------------------------------------------------------------------------------------|
| Frequency Range .....      | 235 mc - 1000 mc in two bands:<br>Band A - 235 mc - 500 mc<br>Band B - 490 mc - 1000 mc |
| Noise Figure .....         | Band A - 10 db maximum<br>Band B - 12 db maximum                                        |
| Image Rejection .....      | 65 db minimum                                                                           |
| I.F. Rejection .....       | 75 db minimum                                                                           |
| I.F. ....                  | 60 mc                                                                                   |
| Bandwidth .....            | 2 mc                                                                                    |
| Oscillator Radiation ..... | Band A - 8 $\mu$ v maximum<br>Band B - 75 $\mu$ v maximum                               |
| Input Impedance .....      | 50 ohms                                                                                 |
| Output Impedance .....     | 50 or 75 ohms                                                                           |
| Power .....                | 115-230 V, 50-400 cps, 25 watts                                                         |
| Size .....                 | 19 inches wide, 3.5 inches high, 12 inches deep                                         |
| Weight .....               | 18 lbs.                                                                                 |

PRICE \$1,400.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

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# Technical Data

## TYPE 301A VLF RECEIVER



### PRELIMINARY SPECIFICATIONS

|                                  |                                                                                                                         |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Frequency Coverage . . . . .     | 3-30 kc in three bands<br>Band I: 3-6 kc<br>Band II: 6-14 kc<br>Band III: 14-30 kc                                      |
| Input Impedance . . . . .        | 75 $\Omega$ , unbalanced                                                                                                |
| Intermediate Frequency . . . . . | 45 kc                                                                                                                   |
| IF Selectivity . . . . .         | 200 cps                                                                                                                 |
| Sensitivity . . . . .            | Approximately 0.1 $\mu$ v (75 $\Omega$ input) for a 15 db signal/noise ratio                                            |
| Image Rejection . . . . .        | Better than 70 db                                                                                                       |
| Controls . . . . .               | Tuning, Bandswitch, RF and IF gain, AF gain, AGC slow/fast and off, BFO on/off and pitch                                |
| Audio Output . . . . .           | 1 volt rms into 2K $\Omega$ , approximately, for 50% modulation                                                         |
| IF Output . . . . .              | 100 mv into 50 $\Omega$ , approximately                                                                                 |
| Audio Response . . . . .         | 10 cps to 100 cps in AGC/fast position<br>1 cps to 100 cps in AGC/slow position<br>0 cps to 100 cps in AGC/off position |
| Power Input . . . . .            | 115 volts, 50/60/400 cps                                                                                                |
| Power Consumption . . . . .      | 4 watts, approximately                                                                                                  |

PRICE \$1,000.00

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# Technical Data

## TYPE 302 LF RECEIVER



The CEI Type 302 LF Receiver was designed to fill the need for a small sensitive receiver covering the range of 30 to 300 kc. All active elements are solid state, thereby reducing heat and increasing stability. A three position function switch allows the selection of AM-AGC, AM-MAN, and CW reception modes. When the receiver is in the AM-AGC mode, the AGC response can be set to either FAST or SLOW by a front-panel toggle switch. An internal BFO is activated when the function switch is placed in the CW mode.

### SPECIFICATIONS

|                                 |                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Type of Reception .....         | AM and CW                                                                                                              |
| Frequency Coverage .....        | 30-300 kc in three bands<br>Band I: 30-60 kc<br>Band II: 60-140 kc<br>Band III: 140-300 kc                             |
| Input Impedance .....           | 75 ohm, unbalanced; Type BNC connector                                                                                 |
| Intermediate Frequency .....    | 455 kc                                                                                                                 |
| IF Bandwidth .....              | 2 kc                                                                                                                   |
| IF Rejection .....              | 60 db min.                                                                                                             |
| Image Rejection .....           | 70 db minimum                                                                                                          |
| Sensitivity .....               | 0.4 microvolt input, modulated 50% at a 400 cps rate<br>produces 15 db (s + n)/n                                       |
| Controls .....                  | BFO tuning; AGC-Fast/Slow; RF-IF Gain; Audio Gain;<br>Power-On/Off; main tuning; Range; function-AM-AGC,<br>AM-MAN, CW |
| Manual Gain Control Range ..... | Greater than 100 db                                                                                                    |

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#### Outputs

|                         |                                                                                                                             |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Audio .....             | 1 volt rms into 2k ohm load                                                                                                 |
| IF .....                | 100 mv into 50 ohm load approx.                                                                                             |
| Audio Response .....    | 10 cps to 1000 cps in AGC/fast position<br>1 cps to 1000 cps in AGC/slow position<br>0 cps to 1000 cps in AGC/off position. |
| Meter .....             | Signal Strength                                                                                                             |
| Dial Accuracy .....     | $\pm 1\%$                                                                                                                   |
| Power Input .....       | 115 volts, 50-400 cps.                                                                                                      |
| Power Consumption ..... | 4 watts, approx.                                                                                                            |
| Weight .....            | 13.5 lbs                                                                                                                    |
| Over-all Size .....     | 3.5" h x 19" w x 16.75" d                                                                                                   |

Price \$1,000.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

9/18/64





# PRODUCTS



has designed and is continuing to design and produce a line of special purpose receivers and auxiliary receiving equipment which employ the newest in electronic components and circuit techniques.

The instruments listed here are but a few of the equipments designed by us and fabricated in our plant. A number of these units are available from stock or on early delivery.

## RECEIVERS and RECEIVING SYSTEMS

- 300 Series 3 kc-300 kc VLF and LF
- 400 Series 25 mc-155 mc HF and VHF
- 500 Series 54-260 mc VHF
- 600 Series 54-260 mc Doppler
- 700 Series 250 mc-1000 mc UHF
- 900 Series 30 mc-300 mc VHF
- RS-100 Series 30-1000 mc including built-in signal monitor

## SIGNAL MONITORS

- 8500 Series for visual display of HF signals
- 9300 Series for visual display of VHF and UHF signals

## RF and IF MODULES

Designed and fabricated to specification

## PREAMPLIFIERS, CONVERTERS and MULTICOUPLERS

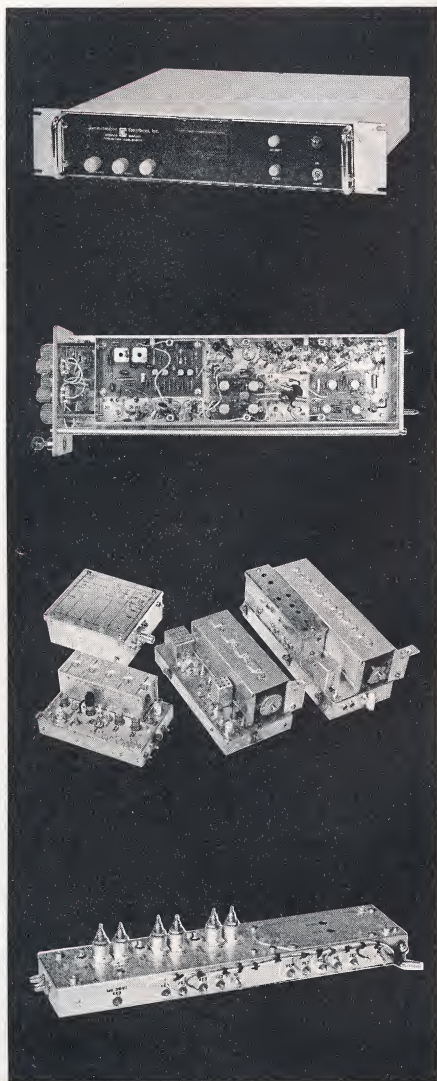
Designed and fabricated to specification; present over-all frequency range is 2 mc to 600 mc.

## FREQUENCY EXTENDERS and CONVERTERS

For increasing tuning range of VHF receivers to 1000 mc.

## AUDIO, VIDEO and SPEAKER UNITS

Accessory equipment for receivers.



## SALES REPRESENTATIVES

### TEXAS

John W. Casey, III  
Suite 206, 7078 San Pedro Ave.  
San Antonio, Texas

### FLORIDA

Electro Space, Incorporated  
P.O. Box 246, Melbourne Beach, Florida

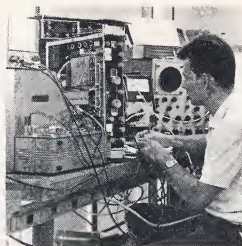
### CANADA

Electromechanical Products  
Markham Rd., Agincourt, Ontario

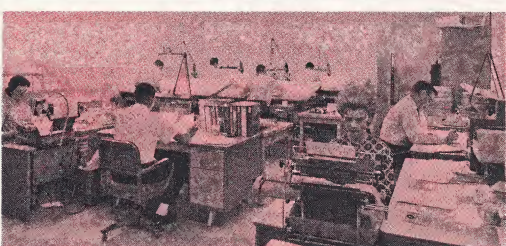
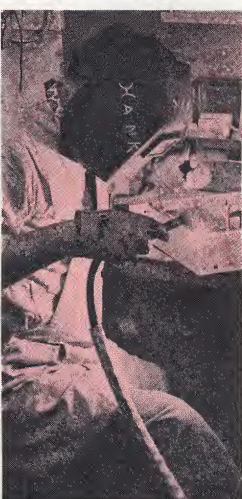
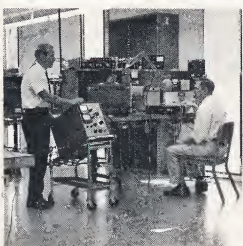
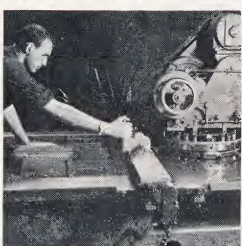
### EXPORT

Telesco International  
171 Madison Ave., New York, New York





# FACILITIES



In a growing company any facilities list prepared today is obsolete tomorrow. For this reason we do not spell out in minute detail the production and laboratory equipment in our modern plant. We prefer, rather, to talk about our operation philosophy.

We believe that insofar as possible every operation needed to produce the equipment we design should be performed in house, and this is the basis on which we have founded what we believe to be one of the most self-sufficient organizations in the electronics industry. With the exception of purchased components, we do not go outside of our own plant for anything except electroplating.

We have the facilities and the personnel to perform all of the operations listed below:

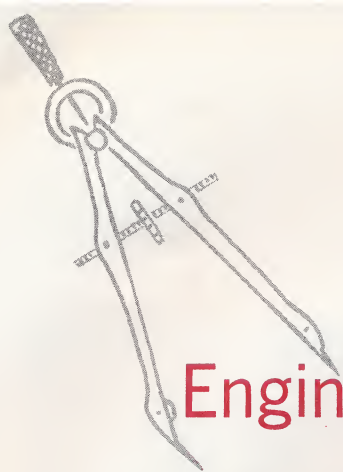
- ☐ ALL MACHINE OPERATIONS
- ☐ TRANSFORMER FABRICATION
- ☐ PRECISION SHEET METAL FABRICATION
- ☐ WIRING
- ☐ TESTING
- ☐ METAL TREATMENT FOR CORROSION PREVENTION
- ☐ ASSEMBLY
- ☐ PRINTED CIRCUIT FABRICATION, FROM ARTWORK TO FINISHED BOARDS
- ☐ FABRICATION OF ETCHED PANEL OVERLAYS AND NAME PLATES
- ☐ PRECISION GEAR TRAIN ASSEMBLY
- ☐ WELDING
- ☐ TESTING
- ☐ INSTRUCTION BOOK PREPARATION

Our laboratories, drafting and test departments are adequately equipped with the latest and best equipment that money can buy. We extend a cordial invitation to you to visit our plant and see a really self-sufficient organization. Our method of operation obviously calls for an expenditure for capital equipment far in excess of that usually associated with electronic manufacturing, which in many cases is concerned only with assembling parts purchased from outside sources. We sincerely believe that our method of operation gives us a control over our quality and delivery that cannot possibly be attained any other way. It gives us a quick reaction capability, and it enables our engineers to design equipment without the limitations imposed by dependence upon outside facilities.

- ☐ All facilities are wholly company owned.  
We have no leased or Government furnished equipment.







## Engineering

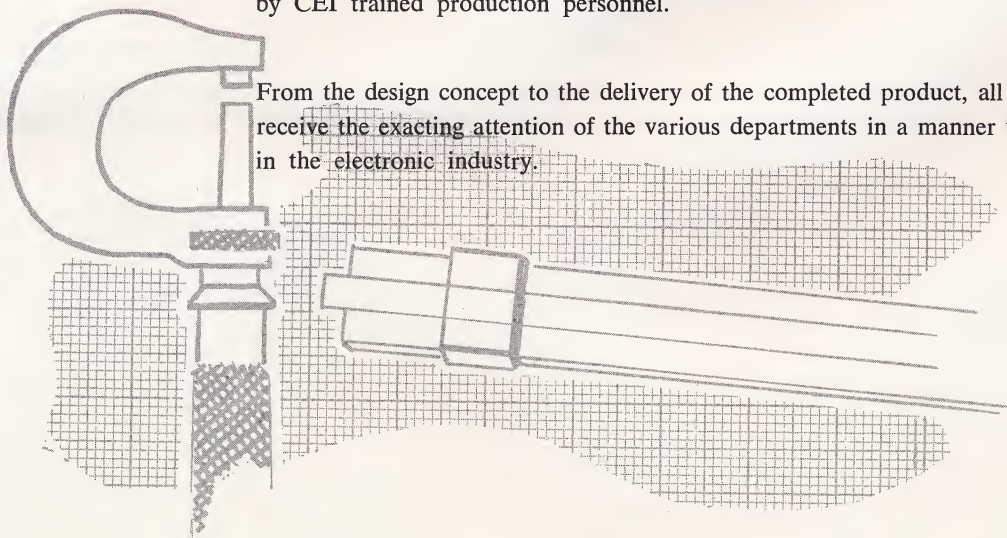
The CEI technical staff is comprised of graduate electronic engineers and practical communication equipment technicians, with extensive experience in the design and development of receiving equipment for the telemetry, surveillance and communication fields. The senior electronic engineers and project engineers have specialized in the RF field with particular emphasis in the VHF and UHF frequency ranges.

Among the technical accomplishments of this department were the designs of low noise VHF and UHF receivers employing solid state components and modular construction, UHF tuners requiring extreme stability as well as low noise, the first VHF receiver covering the entire VHF frequency range of 30 to 300 MC, pre-amplifiers, converters, signal monitors, doppler receivers for such programs as Project Transit, video distribution amplifiers and many other electronic receiving devices for telemetry and communication applications.

## Production

In addition to the design and development capabilities, CEI is a production firm with complete in-plant facilities for fabrication and construction of precision electronic equipment.

Machine shop, sheet metal, painting, transformer, printed circuit, assembly and test departments all contribute towards a control of quality and customer delivery assurance. The products designed by the CEI technical staff are all produced by CEI trained production personnel.



From the design concept to the delivery of the completed product, all equipments receive the exacting attention of the various departments in a manner unsurpassed in the electronic industry.

If there is one thing that characterizes CEI it is the fact that not only in top management but throughout the operation in every responsible position there are men with experience, knowledge, and demonstrated ability in electronic engineering and production.



# MANAGEMENT



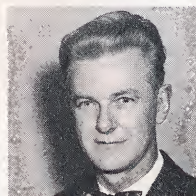
A. S. CLARKE



R. E. GRIMM



R. P. MAY



V. M. NOONAN



J.K. GEARING

## CHAIRMAN OF THE BOARD

### Allen S. Clarke

Mr. Clarke has been continuously engaged in the communication and electronics field for more than 45 years as engineer, consultant, and administrator. He has had extensive experience in broadcasting, electronic ordnance development, and the design and production of communication equipment.

During World War II he was technical aide to the Chairman of Division 4 of the National Defense Research Committee. For his war work he earned the Naval Ordnance Development Award and the Presidential Certificate of Merit.

He founded Clarke Instrument Corporation in 1946, which company pioneered in the development of equipment for the then new field of telemetry. This company later became Nems-Clarke, Inc., with Mr. Clarke as president. Since 1960 he has served as consultant to and director of Rixon Electronics and Weinschel Engineering and as chairman of the board of Communication Electronics, Inc.

Mr. Clarke is a registered professional engineer in the District of Columbia and a senior member of the IEEE.

## PRESIDENT

### Ralph E. Grimm

A registered professional engineer in the District of Columbia, a member of IEEE, SMPTE, and SPSE, Mr. Grimm directs all CEI operations, with particular attention to the technical and engineering phases. He has presented many technical papers before associations and written numerous articles for professional journals. He served in the U.S. Coast Guard as a specialist in Loran development and following the war years was with Air Track Manufacturing Company, Clarke Instrument Corporation, and Nems-Clarke, Inc. Mr. Grimm is widely recognized as an authority in the RF field and has directed the design of ground telemetry, surveillance, and other types of special-purpose receivers widely used throughout the armed services. Ground telemetry equipment designed under his guidance is now considered as standard at virtually every military and satellite base throughout the world. He was formerly an instructor in radio at Capital Radio Engineering Institute, of which he is a graduate.

## VICE PRESIDENT IN CHARGE OF SALES

### Rudy P. May

Mr. May has had eighteen years' experience in electronic production and sales. After graduation from Virginia Polytechnic Institute, he became a production engineer for Washington Institute of Technology for two years, later transferring to Nems-Clarke Company, where he worked in the same capacity for five years before transferring to sales to eventually become director of all sales activity. He has extensive contacts in the industry, particularly in the field of equipment for surveillance, reconnaissance, telemetry, and communications. He joined CEI in May 1961 to become sales manager and later vice president in charge of sales.

## TREASURER

### Vincent M. Noonan

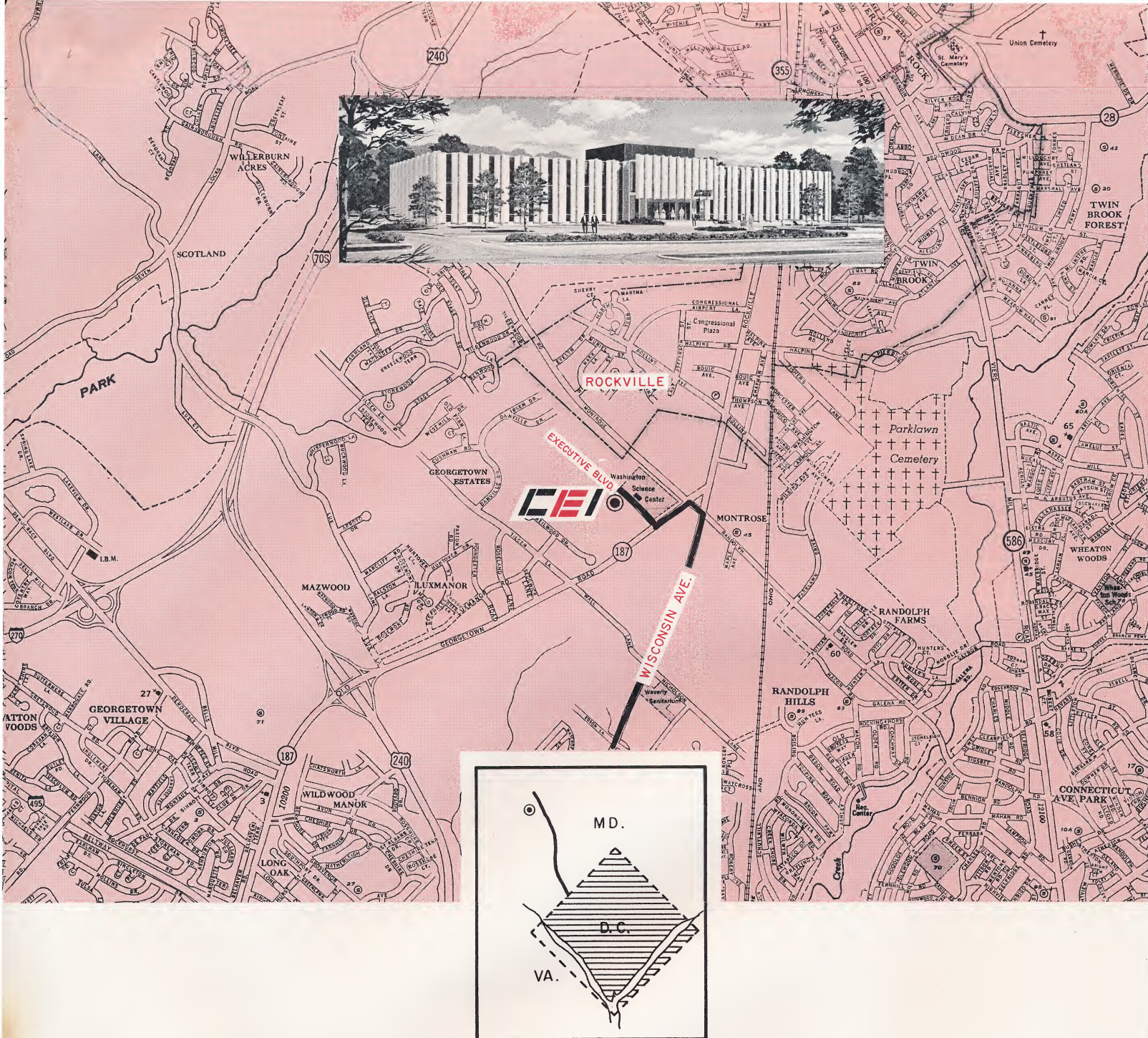
On completing college, Mr. Noonan was employed for many years as a certified public accountant before becoming secretary and treasurer of National Electronic Laboratories, Inc. This firm became a subsidiary of Thiokol Chemical Corporation, at which time Mr. Noonan became assistant to the treasurer, responsible for budgeting, financial forecasting and special assignments on financial matters.

## SECRETARY

### John K. Gearing

Mr. Gearing is a Member of the Bar in the State of Maryland and a graduate of Georgetown University. He has had many years' experience in contract administration for all branches of the military services. He also has had extensive experience in labor relations and personnel work. All of his experience has been with companies similar to Communication Electronics, Inc., and he is therefore uniquely qualified to serve as secretary of the corporation.





**CEI** is located in Rockville, Maryland, a suburb of Washington, D. C. The photo inset into the map depicts our new facility located in the Washington Science Center. This new 50,000 square foot building was designed to meet the requirements dictated by CEI's policy of performing all necessary operations in-house to produce the highest quality electronic equipment.

**CEI** is situated at the intersection of Montrose Road and Old Georgetown Road. Since this location is only three miles from the Capital Beltway, three major airports are within 30 minutes driving time; truck and rail facilities are also within convenient driving times. CEI is therefore well located both from the standpoint of customer service and of expediting urgent shipments



## **Communication Electronics Incorporated**

6006 EXECUTIVE BOULEVARD  
WASHINGTON SCIENCE CENTER  
ROCKVILLE, MARYLAND, 20852

Incorporated in September 1960, Communication Electronics has in this short time established a name as the foremost designer and producer of precision electronic receiving equipment in the VHF and UHF ranges.



Special emphasis has been placed on receiving devices for the surveillance, telemetry, direction finding, countermeasures, and general communication fields. The officers and personnel are all experienced in this phase of the electronic industry. For more than a decade, they worked together in one of the most successful firms in the field of electronic communications and were responsible for attaining and maintaining that firm's predominant position as the leading designer and supplier of RF telemetry equipment.

